

Amendments To Claims

This listing of claims will replace all prior versions and listings of claims in the subject patent application.

Listing of Claims:

Claim 1 (currently amended): An interconnect for an electrically driven solid electrolyte oxygen separation device consisting of a single layer comprising a composition of matter represented by the general formula:



wherein

Ln is selected from the group consisting of La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu;

A is selected from the group consisting of Sr, Ba and Y;

B is selected from the group consisting of Cu, Co, Cr, Fe, Ni, Zn, Nb, Zr, V, Ta, Ti, Al, Mg, and Ga;

$0.1 \leq x \leq 0.9$; $0.1 \leq x' \leq 0.9$; $0 \leq x'' \leq 0.5$;

$0.5 < y < 1.2$; and $0 \leq y' \leq 0.5$;

provided that $x + x' + x'' = 1$ and $1.2 > y + y' > 1.0$

wherein δ is a number which renders the composition of matter charge neutral.

Claim 2 (original): The interconnect of claim 1 wherein Ln is La.

Claim 3 (original): The interconnect of claim 1 wherein A is Sr.

Claim 4 (original): The interconnect of claim 1 wherein B is Co.

Claim 5 (original): The interconnect of claim 1 wherein $0.3 \leq x \leq 0.7$ and $0.3 \leq x' \leq 0.7$.

Claim 6 (original): The interconnect of claim 1 wherein x'' is 0.

Claim 7 (original): The interconnect of claim 1 wherein $0.9 < y < 1.2$ and $0 \leq y' \leq 0.1$.

Claim 8 (original): The interconnect of claim 1 wherein y' is 0.

Claim 9 (original): The interconnect of claim 1 wherein Ln is La, A is Sr, B is Co,
 $0.3 < x < 0.5$; $0.5 < x' < 0.7$; $0 < x'' < 0.2$; $0.9 < y < 1.05$; and $0 < y' < 0.1$; provided that $x + x' + x'' = 1$ and $1.05 > y + y' \geq 1.02$.

Claim 10 (currently amended): An interconnect for an electrically driven solid electrolyte oxygen separation device consisting of a single layer comprising a composition of matter represented by the general formula



wherein

Ln is selected from the group consisting of La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu;

$0.1 \leq x \leq 0.9$; $0.1 \leq x' \leq 0.9$; and

$1.0 < y < 1.2$;

provided that $x + x' = 1$, and

wherein δ is a number which renders the composition of matter charge neutral.

Claim 11 (original): The interconnect of claim 10 wherein $0.3 \leq x \leq 0.7$.

Claim 12 (original): The interconnect of claim 10 wherein Ln is La, $0.3 \leq x \leq 0.5$ and $1.0 < y < 1.05$.

Claim 13 (currently amended): An electrochemical solid-state device comprising at least two electrochemical cells which are electrically connected in series by one or more interconnects wherein at least one interconnect consists of a single layer comprising comprises a composition of matter represented by the formula



wherein

Ln is selected from the group consisting of La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu;

A is selected from the group consisting of Sr, Ba and Y;

B is selected from the group consisting of Cu, Co, Cr, Fe, Ni, Zn, Nb, Zr, V, Ta, Ti, Al, Mg, and Ga;

$0.1 \leq x \leq 0.9$; $0.1 \leq x' \leq 0.9$; $0 \leq x'' \leq 0.5$;

$0.5 < y < 1.2$; and $0 \leq y' \leq 0.5$;

provided that $x + x' + x'' = 1$ and $1.2 > y + y' > 1.0$; and

wherein δ is a number which renders the composition of matter charge neutral.

Claim 14 (original): The electrochemical solid-state device of claim 13 wherein Ln is La, A is Sr, B is Co, $0.3 \leq x \leq 0.5$; $0.5 \leq x' \leq 0.7$; $0 \leq x'' \leq 0.2$; $0.9 < y < 1.05$; and $0 \leq y' \leq 0.1$; provided that $x + x' + x'' = 1$ and $1.05 > y + y' \geq 1.02$.

Claim 15 (currently amended): An electrochemical solid-state device comprising at least two electrochemical cells which are electrically connected in series by one or more interconnects wherein at least one interconnect consists of a single layer comprising ~~comprises~~ a composition of matter represented by the formula:



wherein

Ln is selected from the group consisting of La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy,

Ho, Er, Tm, Yb, and Lu;

$$0.1 \leq x \leq 0.9; 0.1 \leq x' \leq 0.9;$$

$$1.0 < y < 1.2$$

provided that $x + x' = 1$; and

wherein δ is a number which renders the composition of matter charge neutral.

Claim 16 (original): The electrochemical solid-state device of Claim 15 wherein Ln is La, $0.3 \leq x \leq 0.5$ and $1.0 < y < 1.05$.